


[Products & Services](#)
[About Schlumberger](#)
[Investor Center](#)
[Newsroom](#)
[Careers](#)
[Contact](#)
[Oilfield Glossary](#)

Search for term:

Term s beginning with:

#	A	B	C	D	E	F
G	H	I	J	K	L	M
N	O	P	Q	R	S	T
U	V	W	X	Y	Z	All

Resource Links

- ◆ [Oilfield Services](#)
- ◆ [Schlumberger Excellence in Educational Development](#)
- ◆ [Oilfield Review](#)

Feedback

We welcome your suggestions and questions:

◆ [E-mail glossary@slb.com](mailto:glossary@slb.com)

Credits & Bibliography

◆ [Contributors and references](#)

You are here: [SLB.com](#) > [Products & Services](#) > [Resources](#) > [Oilfield Glossary](#)

Poisson's ratio

1. *n. [Geophysics]*

An elastic constant that is a measure of the compressibility of material perpendicular to applied stress, or the ratio of longitudinal strain. This elastic constant is named for Simeon Poisson (1781 to 1840), a French mathematician. Poisson's ratio can be expressed in terms of properties that can be measured in the field, including velocities of P-waves and S-waves

$$\sigma = 1/2(V_p^2 - 2V_s^2)/(V_p^2 - V_s^2),$$

where σ = Poisson's ratio

V_p = P-wave velocity

V_s = S-wave velocity.

Note that if $V_s = 0$, then Poisson's ratio equals 1/2, indicating either a fluid, because shear waves do not pass through a material that maintains constant volume regardless of stress, also known as an ideal incompressible material. V_s is a characteristic of a gas reservoir. Poisson's ratio for carbonate rocks is ~ 0.3, for sandstones ~0.2, and above 0.3 for Poisson's ratio of coal is ~ 0.4.

See: [elastic constants](#), [P-wave](#), [S-wave](#), [velocity](#)